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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,237	04/01/2004	Brent R. Jones	A1664Q-US-DIV	9134

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EXAMINER

LIANG, LEONARD S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/816,237	Applicant(s) JONES ET AL.	
	Examiner Leonard S Liang	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04/01/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification and Drawings

The lengthy specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

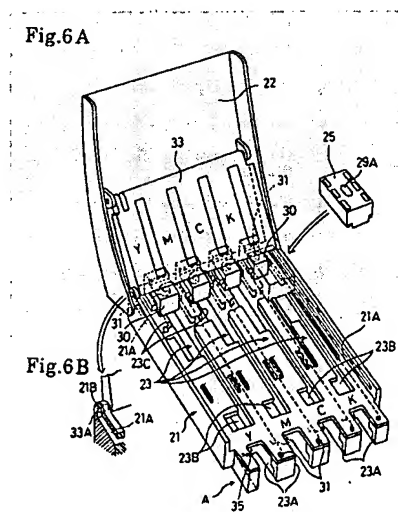
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 10-12, and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishii et al (US Pat 6053608).

Ishii et al discloses:

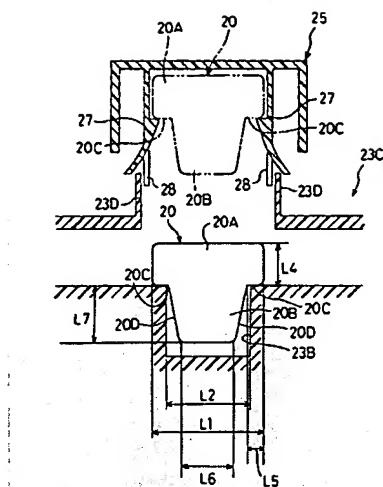
- {claim 1} An ink stick for use in a solid ink feed system of a phase change ink printer, wherein the solid ink feed system includes a shaped guide rail (figure 2, 6A, 7); a three dimensional ink stick body having a guide surface and a plurality of side surfaces that intersect the guide surface (figure 2, reference 20C, 20D; 20C corresponds to guide surface and 20D corresponds to side surface); a shaped guide element formed in the guide surface of the ink stick body (figure 2; portion between references 20C and 20D); wherein at least one of the side surfaces has a predetermined non-planar key shape so that the ink stick can be inserted in an

insertion direction into the solid ink feed system through an opening having a corresponding non-planar key shape (figure 2; there are 2 shaped guide elements that are positioned between the guide surface 20C and side surface 20D; one of the two guide surfaces will be construed as the disclosed guide element and the other guide element will be construed as a non-planar key shape belonging to at least one of the side surfaces); wherein the shaped guide element is shaped for guiding the ink stick in a feed direction along a defined path in the ink stick feed system (figure 7); wherein the feed direction is substantially perpendicular to the insertion direction (figure 6A, 7); wherein the shaped guide element has a shape that complements the shape of the shaped guide rail in the solid ink feed system (figure 2, reference 20C, 20D, 23B)



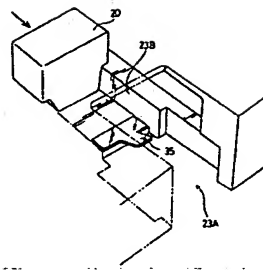
- {claim 2} wherein the side surfaces are oriented in planes that are substantially different from the plane of the guide surface (figure 2, reference 20C, 20D)

Fig. 2



- {claim 3} wherein each of the side surfaces has a plane that is substantially different from the plane of the guide surface (figure 2, reference 20C, 20D)
- {claim 4} An ink stick for use in a solid ink feed system of a phase change ink printer, wherein the solid ink feed system includes an elongate shaped guide rail extending in a feed direction (figure 2, reference 30; figure 2, 7, reference 23B); a three dimensional ink stick body having a guide surface and an insertion perimeter (figure 2, reference 20); a shaped guide element formed in the guide surface shaped to interact with the elongate shaped guide rail of the solid ink feed system for guiding the ink stick along the guide rail (figure 2; portion between reference 20C and 20D); wherein the ink stick insertion perimeter is in a plane substantially perpendicular to an insertion direction (figure 2, 6A, reference 25); wherein the insertion direction is substantially different from the feed direction (figure 2, 6A, reference 25; figure 2, 7, reference 20)

Fig.7



- {claim 5} wherein the shaped guide element is non-planar (figure 2; portion connecting reference 20C and 20D)
- {claim 6} wherein the ink stick shaped guide element has a shape substantially matching the shape of the elongate shaped guide rail of the solid ink feed system (figure 2, reference 20C, 20D, 23B)
- {claim 10} A solid ink feed system for a phase change ink jet printer (figure 6A); a longitudinal feed channel (figure 6A, reference 23); a first longitudinal guide rail extending along a length of the feed channel in a feed direction (figure 2, 6A, 7, reference 23B); a key plate having an insertion opening through it to admit an ink stick in an insertion direction into the longitudinal feed channel (figure 6A, reference 23C); an ink stick having a guide surface (figure 2; portion between refs 20C and 20D); wherein the feed direction is different from the insertion direction (figure 2, 6A, reference 25; figure 2, 7, reference 20); the ink stick has a longitudinal guide element formed on a guide surface (figure 2; portion between refs 20C, 20D); and the shape of the ink stick guide element and the shape of the feed channel guide rail substantially complement one another, so that when the ink stick is placed in the feed channel, the feed channel guide rail and the ink

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stick guide element interact to guide the ink stick along the feed channel (figure 2; reference 20 C, 20D, 23B)

- {claim 11} the width of the longitudinal guide rail is substantially less than the width of the feed channel (figure 6A, reference 23, 23B)
- {claim 12} the guide rail includes a protrusion (figure 2, reference 23B); the ink stick guide element is a recess into the guide surface of the ink (figure 2, reference 20C, 20D)
- {claim 14} wherein the ink stick has an insertion perimeter shape that is substantially the same as the shape of the insertion opening in the key plate (figure 6A, reference 23C, 25)
- {claim 15} the feed direction is substantially perpendicular to the insertion direction (figure 6A, reference 23C, 25)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al (US Pat 6053608) in view of Crawford et al (US Pat 5861903).

Ishii et al discloses:

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- {claim 7} A method of inserting an solid ink stick into a feed channel of a solid ink printer (figure 6A); providing an ink stick having an ink stick insertion perimeter (figure 2, reference 20); aligning the ink stick insertion perimeter with an insertion opening of a key plate (figure 2, reference 23C, 25); inserting the ink stick in an insertion direction through the insertion opening (figure 2, reference 23C); aligning a shaped guide element on the ink stick with a guide rail in the feed channel (figure 2, reference 20C, 20D, 23B); moving the ink stick in a feed direction in the feed channel, wherein the feed direction is different from the insertion direction (figure 6A, 7); wherein at least one of the non-linear key element shapes is oriented at least partially transverse to the feed direction (figure 2, portion between references 20C and 20D)
- {claim 8} wherein the insertion direction is substantially perpendicular to a plane containing the ink stick insertion perimeter (figure 6A, reference 23C, 25)
- {claim 9} wherein at least one of the non-linear key element shapes is oriented substantially parallel to the feed direction (figure 2; longitudinal part of portion between refs 20C, 20D)

Ishii et al differs from the claimed invention in that it does not disclose:

- {claim 7} wherein aligning the ink sticks insertion perimeter with the insertion opening comprises aligning at least three non-linear key element shapes

Crawford et al discloses:

- {claim 7} a key plate with non-linear key element shapes for the sides of ink sticks (figure 4, reference 18)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Crawford et al into Ishii et al. The motivation for the skilled artisan in doing so is to gain the benefit of providing additional keying for the ink sticks as they are inserted into the feed system, thus providing an efficient and simple way of providing ink sticks to the heated melt plates to insure a continuous supply of molten ink for printing (column 2, lines 51-54). The combination naturally suggests aligning the ink sticks insertion perimeter with the insertion opening comprises aligning at least three non-linear key element shapes. The reason for this is because Ishii et al discloses an ink stick with two non-linear key elements on the bottom of step portion 20C. However, all the ink sticks are shaped like that. By incorporating the key plates disclosed by Crawford et al, the ink sticks of Ishii et al can be further differentiated from each other as additional keying elements are introduced in the sides of the ink stick (as shown by Crawford et al figure 4, reference 24A, 24B, 24C, and 24D).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al (US Pat 6053608) in view of Loofbourrow et al (US Pat 5223860).

Ishii et al discloses, with respect to claim 13, a solid ink feed system (as applied to claim 10 above).

Ishii et al differs from the claimed invention in that it does not disclose that the guide rail includes a recess and the ink stick guide element is a protrusion on the guide surface of the ink stick.

Loofbourrow et al discloses, with respect to claim 13, the guide rail includes a recess and the ink stick guide element is a protrusion on the guide surface of the ink stick (figure 4,

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reference 39a; column 6, lines 39-68). Furthermore, Loofbourow et al also shows the case where the guide rail includes a protrusion and the ink stick guide element is a recess into the guide surface of the ink stick.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Loofbourrow et al into the invention of Ishii et al. The motivation for the skilled artisan in doing so is to gain the benefit of providing different means of contact between the ink stick guide element and the guide rail, so that the ink stick may effectively slide in the ink channel.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LAMSON NGUYEN
PRIMARY EXAMINER
1/7/83